Fact Sheet:

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VEGSPEC PLANT SPECIES SELECTION SOFTWARE

The Problem

Although several thousand woody and herbaceous plant species are commercially available for revegetation of damaged lands, experts in the land reclamation industry suggest that revegetation projects fail 10-35% of the time, depending on the geographic region. Among the most frequently cited reasons for failure are improper selection of species and improper species mixtures. A significant percentage of the time, the species selected are either not adapted to the site conditions or not adapted to the intended uses of the land.

The Technology

The U.S. Army Construction Engineering Research Laboratories (CERL), Natural Resources Conservation Service (NRCS), and U.S. Geological Survey (USGS) are cooperatively developing a decision support system, VegSpec, to select plant species for land reclamation projects. The land reclamation practices for which VegSpec was developed include cover crops, critical area planting, windbreaks, filter strips, pasture planting, range planting and tree planting. The VegSpec user is required only to identify the desired practice, soil series, nearest climate station, and minimal site information to arrive at a list of plant species adapted to the site. The list can be restricted by identifying specific purposes for which the practice is intended. Purposes include aesthetics/vegetative screening, fertility enhancement, filtration of pollutants, livestock forage, microclimate modification,

native plant community restoration, slope stability, trafficability, tree/shrub products, water and wind erosion control and wildlife habitat. Users may further limit the list of acceptable plants by identifying objectives and/or constraints associated with the selected purposes, such as palatability, season of growth, fire tolerance, etc. VegSpec utilizes expert rules to compare the combined user input and system-generated derivatives with a plants database containing approximately 2500 species. Plant species that meet all criteria are listed for user review.

After the user selects from the list of suitable species, VegSpec helps calculate a seeding rate and evaluates the mixture for potential compatibility problems. The program then helps the user design the planting operation, including planting dates, seed placement, planting method, propagule treatment, seedbed and/or site preparation, temporary cover, soil amendments, etc.

Given the multitude of computer operating systems, it was determined the most efficient mechanism for delivery of the VegSpec capability is via interactive sessions on the Internet. Any user with World Wide Web browser capability can use Vegspec. The VegSpec server is maintained by the NCRS.

Benefits/Savings

VegSpec will greatly enhance the ability to effectively revegetate damaged lands. The guesswork of species selection will be removed, thus enhancing the success rate of revegetation projects and saving significant sums of money.

Status

VegSpec 1.5 with plant selection capability is currently available for public use. Version 2.0 with planting operations guidelines will be available in early 1998. The U.S. Army Environmental Center (AEC) has provided funding for demonstration and technology transfer.

Point of Contact

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